HYMENOPTERA

Braconidae.—*Apanteles* sp.

Formicidae.—*Aenictus* sp., *Camponotus* spp. (more than 3 species seem to be involved), *Myrmecaria* sp. and *Polyrhachis* sp.

DIPTERA

Muscidae.—*Atherigona* sp. ♀.

DIVISION OF ENTOMOLOGY,
DEPARTMENT OF AGRICULTURE, S. USMAN
BANGALORE,
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21. NOTE ON THE LIFE-HISTORY OF *LEMA SEMIREGULARIS* JAC. (COLEOPTERA, CHRYSOMELOIDEA, CRIOCERIDAE)

Eighty-one species of *Lema* are known to occur in India (Jacoby, 1908; Lefroy, 1909). Lefroy (1909) opined that although these beetles were common on grass and on plants in the plains, life-history of none was definitely known and this statement holds true to date. Recently Sengupta (1952) and the authors (Sengupta and Behura, 1953, 1955) studied the life-history of *Lema praeusta* Fab. and *L. signatipennis* Jac. respectively and recorded them, and *L. semiregularis* Jac. on turmeric (*Curcuma longa*) for the first time. The only other species of *Lema* known to occur on turmeric is *L. fulvicornis* Jac., in Ceylon (Huston, 1937).

L. semiregularis was first noticed as a minor pest on turmeric in 1949 in the district of Phulbani (Orissa) along with *L. praeusta* and *L. signatipennis*. During subsequent years all the three species appeared in major pest form in Phulbani, and are so far known to be confined to that district. Adult specimens of *L. semiregularis* were obtained from the Turmeric Research Station, G. Udaygiri, and reared at Cuttack in the Entomological Laboratory of the Department of Agriculture, Orissa, at ordinary room temperature in glass jars covered with muslin during November 1953 to January 1954. Besides, field observations were also made by the staff of the Entomological Section of the Agriculture Department stationed at G. Udaygiri and Phulbani.

It is interesting to note that the different stages in the life-history of the three species of *Lema* infesting turmeric in Orissa, viz., *L. praeusta*, *L. signatipennis* and *L. semiregularis* were extraordinarily similar.

Life-History

Egg: The eggs are laid singly on the leaves, being thrust into the tissues. No female was observed to lay more than 11 eggs within 24 hours, counts of 3, 5, 8, 9, 10 and 11 being typical for the egg masses. Incubation lasted from 4 to 5 days.

Larva: The larva on emergence measured about 0.13 mm. in length. Locomotion and feeding in the larva was noticed immediately after emergence. The apex of the anal segment is turned upwards and the faeces are released little by little so that they covered the dorsal part of the abdomen of the larva. The excreta are green and initially very little in quantity, appearing as a speck on the abdomen. Gradually they become heaped so as to form a protective covering for the larva. During the course of its development the old faecal matter on the abdomen gets discarded automatically and is left on the leaves and fresh excreta are again deposited. The larva is a voracious feeder. It grew to a length of about 0.54 mm., after which it pupated. The larval period lasted about 15 days.

Pupa: Before pupation the protective covering of faeces is discarded and feeding is slow. The head of the pupa is pale brown and the abdomen is very much enlarged and yellowish in colour. White streaks of 2-3 mm. long appear all over the abdomen. The pupa measured about 1.0 × 0.8 mm. and 1.2 × 0.8 mm. The pupal stage lasted about 19 days, giving rise to the blue (elytra) adult.

The total number of days from egg to adult lasted about 39 days.

Grateful thanks are due to the Director, Commonwealth Institute of Entomology, London, for the determination of the insect species.

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References

Huston, J. C. (1937): Report of the work of the Entomological Division. Adm. Rep. Dir. Agric. Ceylon 1936. pp. D22-D28. Colombo. Dec. 1937. (*Rev. Appl. Ent.* **26**. Ser. A. (6): 358 (1938).

Jacoby, M. (1908): The Fauna of British India. Coleoptera. Chrysomelidae. Vol. I., London.

Lefroy, H. M. (1909): Indian Insect Life, Calcutta. pp. 354-355.

Sengupta, G. C. (1952): Observations on *Lema praeusta* Fab. (Chrysomelidae) as a pest of Turmeric. *Proc.* 39 *Ind. Sc. Cong.* (3): 324.

Sengupta, G. C. and Behura, B. K. (1953): Observations on the life-history of *Lema signatipennis* Jac. (Chrysomelidae) as a pest of Turmeric (*Curcuma longa*). *Proc.* 40 *Ind. Sc. Cong.* (3): 198.

Sengupta, G. C. and Behura, B. K. (1955): Some new records of crop pests from India. *Indian J. Ent.* **17**: 283-285.